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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/714,724

Filing Date: November 16, 2000

Appellant(s): BARILLOUD ET AL.

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Wayne P. Bailey  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 5/4/2010 appealing from the Office action mailed 1/6/2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

3-12, 37-41

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

5,426,637	Derby et al.	6-1995
6,457,047	Chandra et al.	9-2002
6,014,686	Elnozahy et al.	1-2000
6,324,580	Jindal et al.	11-2001
5,920,868	Fowlow et al.	7-1999

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Derby et al. (US 5,426,637).

Derby's assignee is International Business Machines Corporation, which is the assignee of the instant application. Derby was issued in 1995, and pre-dates the filing of the instant application by more than five years.

In regard to claim 3, Derby disclosed *a method of balancing demand for networked services in a distributed data processing system, the method comprising the steps of:*

*initializing one or more local service managers within the distributed data processing system, wherein each local service manager has information about and provides access to networked services defined within a respective local region of the distributed data processing system for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager; LAN access agent in column 6, line 10*

*initializing one or more distributed service managers within the distributed data processing system, wherein each distributed service manager provides access to networked services to local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager; directory services unit in column 6, lines 18-32*

*receiving, at a distributed service manager, a request for a networked service from a local service manager for which the local service manager lacks information; a LAN search procedure described in column 7, lines 24-40*

*determining whether the distributed service manager has information about a networked service with one or more characteristics that match one or more parameters in the request for a networked service, wherein the determining step is accomplished by reference to a cache maintained by the distributed service manager which contains information resulting from prior requests for networked services; and a LAN search procedure described in column 7, lines 24-40*

*returning information for referencing a matched networked service. a LAN search procedure described in column 7, lines 24-40*

Claims 3-7, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elnozahy et al. (US 6,014,686) in view of Chandra et al. (US 6,457,047).

In regard to claim 3, Elnozahy disclosed a *method of balancing demand for networked services in a distributed data processing system, the method comprising the steps of:*

*initializing one or more local service managers within the distributed data processing system, wherein each local service manager has information about and provides access to networked services defined within a respective local region of the distributed data processing system for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager;*  
Cell Directory Service, Elnozahy, column 1, lines 41-59; initializes and runs in column 5, lines 20-37

*initializing one or more distributed service managers within the distributed data processing system, wherein each distributed service manager provides access to networked services to local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager;* CDS server, column 5, lines 20-37

Elnozahy disclosed a lookup system for distributed directory service information in an network. Elnozahy failed to disclose the ability of said lookup system to cache information.

Chandra disclosed a method of distributed application caching. If the item queried if found, the result is returned to the user and cached locally. Chandra, column 6, lines 20-34. If the information is not found locally, the query will be executed on distributed directories until the information is found. Chandra, column 6, lines 35-61.

It would have been obvious to one of ordinary skill in the art at the time of invention to implement distributed caching with the Elnozahy distributed service directory system in order to reduce latency in responding to queries.

In regard to claim 4, Elnozahy in view of Chandra disclosed:

*sending a request for a networked service from a requesting client to a local service manager associated with the requesting client; and* Chandra, column 6, lines 20-34

*returning information for referencing a matching networked service from the local service manager to the requesting client, wherein the matching networked service has characteristics that match parameters in the request for a networked service.* Chandra, column 6, lines 20-34

In regard to claim 5, Elnozahy in view of Chandra disclosed:

*receiving a request for a networked service at a local service manager; and* Chandra, column 6, lines 20-34

*determining whether the local service manager has information for referencing a networked service with characteristics that match parameters in the request for a networked service.* Chandra, column 6, lines 20-34 - respond to query of directory in Elnozahy/Chandra combination

In regard to claim 6, Elnozahy in view of Chandra disclosed:

*responsive to a determination that the local service manager has information about a matching networked service, returning information for referencing the matching networked service to the requesting client; Chandra, column 6, lines 20-34*

*responsive to a determination that the local service manager does not have information about a matching networked service, forwarding the request for a networked service from the local service manager to a distributed service manager associated with the local service manager. Chandra, column 6, lines 35-61*

In regard to claim 7, Elnozahy in view of Chandra disclosed:

*responsive to a determination that the distributed service manager does not have information for referencing one or more matching networked services, broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the distributed data processing system; Chandra, column 6, lines 35-61*

*receiving information for referencing one or more matching networked services at the distributed service manager in response to the broadcast request; and Chandra, column 6, lines 35-61*

*caching the received information for referencing one or more matching networked services at the distributed service manager. Chandra, column 6, lines 35-61*

In regard to claim 38, Elnozahy in view of Chandra disclosed:

*determining whether the distributed service manager has information about a plurality of networked services with characteristics that match parameters in the request*

*for a networked service and forming a set of matched network services; Chandra, column 6, lines 10-19*

*determining, based on the request, whether to return a single matched network service of the set of matched network services or the set of matched network services; Chandra, column 6, lines 20-34*

*responsive to a determination to return a single matched network service, returning information about the single matched networked service from the distributed service manager to the local service manager; and Chandra, column 6, lines 20-34*

*responsive to a determination to return the set of matched network services, returning information about the set of matched network services from the distributed service manager to the local service manager. Chandra, column 6, lines 20-34*

Chandra failed to explicitly disclose only allowing a single result to be returned as a result of a query. It would have been obvious to one of ordinary skill in the art at the time of invention that based on the results of the query, the user would receive the results that would have been returned from the query. If more than one service met the user's request, then the query would return all matching services. If only one service met the criteria, only one service would be returned.

In regard to claim 39, Elnozahy in view of Chandra disclosed a plurality of types of networked services are available in the distributed data processing system, and wherein one of the characteristics of a matching service is a type of service. Chandra, column 6, lines 20-34

In regard to claim 40, Elnozahy in view of Chandra disclosed *each of the distributed service managers caches information resulting from requests of supported clients, and wherein the information which respective service manager differs according to the requests of supported clients.* Chandra, column 6, lines 35-61 – caching of information based on queries

Claims 8-12 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elnozahy in view of Chandra as applied to claim8 above, and further in view of Jindal et al. (US 6,324,580).

In regard to claims 8 and 9, Elnozahy in view of Chandra failed to disclose using load balancing to distribute the selection of a resource. However, Jindal disclosed the use of load balancing to select a preferred server to access a distributed network service. Jindal, column 4, lines 49-67. It would have been obvious to one of ordinary skill in the art at the time of invention to use load balancing in a distributed service network in order to reduce stress on a single server.

In regard to claim 10, Jindal further disclosed *comparing network-related metrics during the load balancing operation.* Jindal, column 6, lines 8-15

In regard to claim 11, Jindal further disclosed *comparing one or more of network-related metrics associated with an entire network path between a requesting client and a providing server.* Jindal, column 6, lines 8-15

In regard to claim 12, Jindal further disclosed *the network-related metrics are realtime network-related metrics and are selected from a group comprising: bottleneck-link speed, round-trip time, and hop count.* Jindal, column 6, lines 8-15

In regard to claim 41, Jindal further disclosed *each of the distributed service managers includes a localization module, wherein the parameters within respective localization modules are tailored to provide different load balancing for corresponding distributed service managers.* Jindal, column 4, lines 49-67 - selecting a preferred server

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnozahy in view of Chandra as applied to claim 3 above, and further in view of Fowlow et al. (US 5,920,868).

In regard to claim 37, Elnozahy disclosed *a method of balancing demand for networked services in a distributed data processing system, the method comprising the steps of:*

*initializing one or more local service managers within the distributed data processing system, wherein each local service manager has information about and provides access to networked services defined within a respective local region of the distributed data processing system for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager;*  
Cell Directory Service, Elnozahy, column 1, lines 41-59; initializes and runs in column 5, lines 20-37

*initializing one or more distributed service managers within the distributed data processing system, wherein each distributed service manager provides access to networked services to local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager;* CDS server, column 5, lines 20-37

Elnozahy disclosed a lookup system for distributed directory service information in an network. Elnozahy failed to disclose the ability of said lookup system to cache information.

Chandra disclosed a method of distributed application caching. If the item queried if found, the result is returned to the user and cached locally. Chandra, column 6, lines 20-34. If the information is not found locally, the query will be executed on distributed directories until the information is found. Chandra, column 6, lines 35-61.

It would have been obvious to one of ordinary skill in the art at the time of invention to implement distributed caching with the Elnozahy distributed service directory system in order to reduce latency in responding to queries.

Elnozahy in view of Chandra failed to disclose the use of object request broker services in accessing services in a distributed system. However, Fowlow disclosed accessing objects in a distributed system using an ORB service. Fowlow, column 10, lines 38-58. It would have been obvious to one of ordinary skill in the art at the time of invention to use ORB services with a distributed network to allow remote users to easily access specific services based on their access abilities.

**(10) Response to Argument**

**I. Appellant argued that Derby failed to disclose a method of balancing demand for network services.**

In response to applicant's arguments, the recitation a method of balancing demand for network services has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In claim 3, no balancing of demand occurs. Claim 3 only discloses the exchange of data regarding which servers have information about various "network services."

**II. Appellant argued that Derby failed to disclose "initializing one or more local service managers within the distributed data processing system, wherein each local service manager has information about and provides access to networked services defined within a respective local region of the distributed data processing system for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager."**

Appellant argues that Derby failed to teach "each client is uniquely associated with a local service manager." The local service manager in Derby - the LAN access

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agent - is associated with multiple services that are registered with addressing information.

"Directory services unit 22 relies on the registration of the necessary addressing information by the local LAN access agents in the form of suitable address prefixes as employed by the external protocols executed on the LAN, thus indicating reachability of stations identified by network layer addresses derived from such prefixes. If the LAN protocol incorporates a network layer with structured addresses, the access agent learns these provided prefixes by dynamically participating in the local protocols or by querying the local configuration." Column 6, lines 18-36.

The LAN access agent knows which services are located on the local configuration – a "unique association with a local service manager." The claim does not state that only one service can be associated with only one local service manager or that only one local service manager can be associated with only one service. The claim states there must be a unique association. The American Heritage College Dictionary, fourth edition defines unique as encompassing things that are "characteristic of a particular category, condition, or locality." Nothing in the specification precludes this view of a "unique association."

The LAN access agent is aware of which services are accessible on each local configuration. This is "information about and provides access to networked services defined within a respective local region of the distributed data processing system."

**III. Appellant argued that Derby failed to disclose "receiving, at a distributed service manager, a request for a networked service from a local service manager for which the local service manager lacks information."**

In column 7, lines 17-48 of Derby, the protocol agent registers reachability information for local resources (networked services) when the LAN protocol initiates a search procedure (a request for a networked service from a local service manager for which the local service lacks information). The protocol agent "initiates searches for resources which are not available locally. Reciprocally, directory services unit 22 invokes the protocol components 18 in the appropriate access nodes in order to search the local LANs for the location of a particular destination LAN station. The results of such searches may then be cached by the WAN access agents in address cache 24 connected to protocol component 18, used to expedite the processing of future search procedures." In other words, the agents look for information about a service in their local cache. If that information about the service is not present in their local cache, they search adjoining access agents to locate the service information.

**IV. Appellant argued that Derby failed to disclose "determining whether the distributed service manager has information about a networked service with one or more characteristics that match one or more parameters in the request for a networked service, wherein the determining step is accomplished by reference to a cache maintained by the distributed service manager which contains information resulting from prior requests for networked services."**

In column 7, lines 17-48 of Derby, the protocol agent registers reachability information for local resources (networked services) when the LAN protocol initiates a search procedure (a request for a networked service from a local service manager for which the local service lacks information). The protocol agent "initiates searches for resources which are not available locally. Reciprocally, directory services unit 22 invokes the protocol components 18 in the appropriate access nodes in order to search the local LANs for the location of a particular destination LAN station. The results of such searches may then be cached by the WAN access agents in address cache 24 connected to protocol component 18, used to expedite the processing of future search procedures." In other words, the agents look for information about a service in their local cache. If that information about the service is not present in their local cache, they search adjoining access agents to locate the service information.

The location of the service is "information" about the networked service "with one or more characteristics that match one or more parameters in the request for a networked service," e.g. is this service accessible by this agent or does this agent know how to access the service?

**V. Appellant argued that Elnozahy failed to disclose each of these distributed service managers provides access to networked services to the local service managers.**

The Cell Directory Service provides the information about the networked services to the local service managers. The CDS Server distributes the information for the

networked services to the local service managers. Therefore, the CDS server functions as the distributed service manager, and the Cell Directory Service provides the information to agents. Additionally, Elnozahy provides for a Master CDS and a Replica CDS machine, which can be respectively treated as the local service manager and the distributed service manager (effectively a mirror).

Appellant argues the Master CDS and the Replica CDS do not have the "hierarchical configuration" required by the claimed distributed service manager and local service manager. The Master CDS provides the information about the directory services to the Replica CDS. "CDS maintains a local, hierarchical name space within the cell. The Cell Directory Service manages a database of information about the resources in a group of machines called a DCE cell. The GDS (Global Directory Service) enables intercell communications by locating cells which have been registered in the global naming environment." Elnozahy, column 1, lines 52-55. "The Directory Service provides a distributed and replicated repository for information on various resources of a distributed system, such as location of servers, and the services they offer. Clients use the name space to locate service providers in a well-defined, network-independent manner." Elnozahy, column 1, lines 41-47.

"Master agent 68 forwards the client request to master CDS server 62 on its machine (step 120). If the request requires an update of the name space (step 122) master agent 68 also forwards the request to each available replica agent...Each replica agent in turn forwards this request to the replica server on its machine...Once master agent 68 determines that the update request has been handled by the master

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CDS server 62 and by each of the available replica servers 72 (step 126), master agent 68 forwards the reply from master CDS server 62 back to client 78 (step 130)." Elnozahy, column 6, lines 21-34.

Appellant argues that forwarding the information between the master and replica CDS servers indicates the rejection is improper. "To overcome this problem, the advertisements from each server are turned off and master agent 68 performs the advertisement function for the cell." Elnozahy, column 5, lines 33-35. The replica servers are not automatically backed up, but only on advertisement request command.

**VI. Appellant argued that Elnozahy failed to disclose "wherein each distributed service manager provides access to the networked services to the local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager."**

The claim does not state that only one distributed service manager can be associated with only one local service manager or that only one local service manager can be associated with only one distributed service manager. The claim states there must be a unique association. The American Heritage College Dictionary, fourth edition defines unique as encompassing things that are "characteristic of a particular category, condition, or locality." Nothing in the specification precludes this view of a "unique association."

In this case, there are agents present between the various CDS servers which regulate communication between the CDS servers. Elnozahy, column 6, lines 3-38.

The connection between the CDS servers is a "unique association." Also, "Agent 68 runs on the same machine as the master server and is called the master agent. Agents, such as agent 76, running on machines with replica servers, are called replica agents. A different type of agent, herein called client agent, runs on each CDS client in the cell." Elnozahy, column 5, line 64 - column 6, line 2. This also could fit the metes and bounds of the current claim language element of "wherein each local service manager is uniquely associated with a distributed service manager."

**VII. Appellant argued that Elnozahy failed to disclose "receiving, at a distributed service manager, a request for a networked service from a local service manager for which the local service manager lacks information."**

"Master agent 68 forwards the **client request** to master CDS server 62 on its machine (step 120). **If the request requires an update of the name space (step 122) master agent 68 also forwards the request to each available replica agent...**Each replica agent in turn forwards this request to the replica server on its machine...Once master agent 68 determines that the update request has been handled by the master CDS server 62 and by each of the available replica servers 72 (step 126), master agent 68 forwards the reply from master CDS server 62 back to client 78 (step 130)." Elnozahy, column 6, lines 21-34. If the request is forwarded, then it is received.

**VIII. Appellant argued that Elnozahy in view of Chandry failed to disclose "sending a request for a networked service from a requesting client to a local**

**service manager associated with the requesting client; and returning information for referencing a matching networked service from the local service manager to the requesting client, wherein the matching networked service has characteristics that match parameters in the request for a networked service."**

"Master agent 68 forwards the **client request** to master CDS server 62 on its machine (step 120). If the request requires an update of the name space (step 122) master agent 68 also forwards the request to each available replica agent...Each replica agent in turn forwards this request to the replica server on its machine...**Once master agent 68 determines that the update request has been handled by the master CDS server 62 and by each of the available replica servers 72 (step 126), master agent 68 forwards the reply from master CDS server 62 back to client 78 (step 130).**" Elnozahy, column 6, lines 21-34. If the request is forwarded, it is sent. The reply is returning information for referencing...

**IX. Appellant argued that Elnozahy in view of Chandra failed to disclose "responsive to a determination that the distributed service manager does not have information about one or more matching networked services, broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the distributed data processing system."**

"Master agent 68 forwards the client request to master CDS server 62 on its machine (step 120). **If the request requires an update of the name space (step 122) master agent 68 also forwards the request to each available replica agent...Each**

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replica agent in turn forwards this request to the replica server on its machine...Once master agent 68 determines that the update request has been handled by the master CDS server 62 and by each of the available replica servers 72 (step 126), master agent 68 forwards the reply from master CDS server 62 back to client 78 (step 130)." Elnozahy, column 6, lines 21-34. Forwarding to each available replica agent is broadcasting.

**X. Appellant argued that Elnozahy in view of Chandra failed to disclose "determining, based on the request, whether to return a single matched network service of the set of matched network service or the set of matched network services."**

If all elements of the CDS are not present (failure), then the entire set of matched services may be updated in the next cache coherence cycle. If only one element is missing during a cache coherence cycle, only that one element will be updated. Depending on how many elements are missing, Elnozahy "determines, based on the request, whether to return a single matched network service of the set of matched network services or the set of matched network services." It is not clear if Appellant is equating a networked service to the return of a Web Service, or if the return of information concerning the services present in the system. Since the specification has not clearly limited this element to the return of a Web Service, then the return of information concerning directory services is a reasonable interpretation.

**XI. Appellant argued that Elnozahy in view of Chandra failed to disclose "wherein a plurality of types of networked services are available in the distributed data processing system, and wherein one of the characteristics of a matching service is a type of service."**

Chandra disclosed the determination if a query for a service is present in a cache, and returning that query if it is present. Multiple queries in the cache disclose "a plurality of types of networked services available in the distributed data processing system." If the query is present in the cache, it meets "one of the characteristics of a matching service is a type of service." Chandra, column 6, lines 20-34

Elnozahy disclosed taking directory service information (a plurality of types of networked services, column 1, lines 41-59) and determining if it was present (wherein one of the characteristics of a matching service is a type of service) in a CDS server (distributed data processing system)

**XII. Appellant argued that Jindal failed to disclose "comparing one or more of network-related metrics associated with an entire network path between a requesting client and a providing server."**

Jindal teaches multiple network related metrics. The response time for a request is the latency of a path, which is a network-related metric associated with an entire network path between a requesting client and a providing server. The server's proximity or hop distance measures the distance from the requesting client to the providing

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server, which is a network-related metric associated with an entire network path between a requesting client and a providing server.

**XIII. Appellant argued that Jindal failed to disclose "wherein each of the distributed service managers includes a localization module, wherein the parameters within respective localization modules are tailored to provide different load balancing for corresponding distributed service managers.**

Each server in Jindal is selected based on proximity to those clients the server serves. Load balancing is specific to the server, or "wherein each of the distributed service managers includes a localization module, wherein the parameters within respective localization modules are tailored to provide different load balancing for corresponding distributed service managers." Jindal, column 4, lines 49-67

**XIV. Appellant argued that Fowlow failed to disclose "configuring the local service manager to not provide access to object request broker (ORB) service that provide internal service and which are valid only in a scope of a local ORB; configuring the local service manager to provide access to ORB services that are instantiated on each ORB only through requests based on an ORB identifier; and configuring the local service manager to provide access to ORB services that may be accessed from outside the scope of the local ORB through requests based on both a service specification string and an ORB identifier."**

Fowlow modifies the Elnozahy-Chandra combination to support CORBA, or use of an object request broker (ORB) service. Fowlow, column 10, lines 38-58. The elements of claim 37 in question—are limited to the modifications necessary to allow the Elnozahy-Chandra combination to utilize CORBA/ORB support in order to function. ORB identifiers must be present in a CORBA system.

Fowlow used an ORB interface – Figure 1, item 34. Fowlow used an ORB daemon – Figure 1, item 46. Fowlow allowed the client and object-server to communicate through an ORB, "which is used to locate the various distributed objects and establish communications therebetween." Fowlow, column 2, lines 9-10.

The ORB system in column 8, lines 6-18 uses a naming service to "name ORB objects. A client may use naming service 52 to find a desired object by name. Naming service 52 returns an object reference, that in turn may be used to send requests to that object." The local service manager that uses an ORB is "specially configured to provide access to ORB services or not provide access to ORB services" – it does this based on the naming service.

The particular ORB characteristics used include ORB services that are instantiated on each ORB only through requests based on an ORB identifier – the naming service described above. Not providing access to ORB services that provide internal service and which are valid only in a scope of a local ORB is taught by the "internet inter-ORB protocol may communicate between processes on the same machine..." using the "Secure Protocol...to secure the transmission of information and provide integrity protection and confidentiality." Fowlow, column 7, lines 39-58.

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Providing access to ORB services that may be accessed from outside the scope of the local ORB through requests based on both a service specification string and an ORB identifier is the naming service (ORB identifier, taught above) and the presence of whether the request (service specification string) is present in the Elnozahy system.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/J. R. S./

Examiner, Art Unit 2445

Conferees:

/VIVEK SRIVASTAVA/

Supervisory Patent Examiner, Art Unit 2445

/Patrice Winder/

Primary Examiner, Art Unit 2445